

## THE SKULL FROM TOMB II AT VERGINA: KING PHILIP II OF MACEDON

(PLATES II–VII)

### INTRODUCTION

BECAUSE the techniques and the approach described in this paper are perhaps unfamiliar to readers of this *Journal*, we offer a short introduction on the background to the project.<sup>1</sup> In 1979, after working on the Egyptian mummies in Manchester as part of the Manchester Museum Mummy Research Project, one of us (R. A. H. N.) felt it would be interesting to attempt the reconstruction of some Greek skulls. It seemed that the technique offered interesting new possibilities in the study of Greek portraiture, quite apart from the fascination of an objective method of tackling the appearance of the ancient Greeks. That the very first skull on which we were able to work proved to be such an intriguing one was a stroke of good fortune arising out of the Society's centenary celebrations, when I had the opportunity of discussing the project first with Dr N. Yalouris, and then at his suggestion with Professor M. Andronicos.<sup>2</sup> It is to the latter's great generosity that we owe the privilege of working with a skull that proved much more exciting than even we had anticipated: from the detailed study of the bones that the reconstruction entailed, set against the historical and archaeological evidence, we found that we could not merely reconstruct the dead man's appearance, but provide evidence for his medical history and his military career which identified him (in our view conclusively) as Philip II: we could in fact answer for Professor Andronicos the question that has hung over these tombs at Vergina since he first discovered them in 1977, and identify for him the occupant of the main chamber of Tomb II, the most important of them.<sup>3</sup>

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<sup>1</sup> A condensed version of this paper was presented at the Twelfth International Congress of Classical Archaeology in Athens in September 1983 and will be published in the *Congress Acta*; aside from press reports, an illustrated summary account of the project, with a colour photograph of the final reconstruction, appeared in *Popular Archaeology* v. 9 (March 1984) 8–11 and cover. We have also severally described aspects of the work in lectures given in Manchester, London, Bristol and elsewhere, and have benefited from discussions on those occasions. In addition to those people mentioned in the text, our thanks go to the University of Manchester, the Delta Travel Fund, the Royal Society and the Manchester Museum for grants which made travel to Greece possible and paid for photographs; to Dr K. Romiopolou and Dr J. Vokotopoulou and the staff of the Thessaloniki Museum under their respective directorships for their kindness and generous help—particular thanks go to Mr Dimitrios Mathios, conservator at the museum, for assistance in making casts of the skull; to Mr R. W. Pigott and Mr A. L. H. Moss of the Department of Plastic Surgery and Mr B. Speculand of the Department of Oral Surgery and Orthodontics at Frenchay Hospital, Bristol, for looking at and commenting on photographs and casts of the bones; and Mr M. J. Fowler and Mr R. T. Batchen of the Medical

Faculty Glass Workshop, University of Bristol, for allowing us to burn bones in their kiln with all the inconvenience that this can involve; to Dr Louise Berge for some crucial information on the Chicago head; to the directors of the museums that have provided us with photographs; to Dr M. J. Price for reading a draft of this paper and for saving us from several errors in matters numismatic; to Dr Elizabeth French and Miss Jane Cocking for moral support at a vital moment; and last but not most important to Professor Andronicos for giving three ξένοι access to his finds, then still unpublished. The responsibility for any remaining blemishes is of course our own.

<sup>2</sup> The visit was organized at the invitation of the Minister of Culture and Sciences, Dr D. Nianias, and is described in *JHS* c (1980) vi–vii. Dr Yalouris was then Inspector-General of the Greek Archaeological Service and Director of the National Archaeological Museum in Athens.

<sup>3</sup> For the archaeological background to the project see Andronicos' preliminary reports in *AAA* x (1977) 1–72 (also published separately as *The Royal Graves at Vergina* [Athens 1980] but with different pagination), *AAA* xiii (1980) 168–78, and in M. B. Hatzopoulos and L. D. Loukopoulos (eds), *Philip of Macedon* (London/Athens 1981).

## I. THE ANATOMICAL EVIDENCE

(i) *Introduction*

This section was drafted before I saw the report on the human remains from Tomb II at Vergina by Nikolaus Xiroiris and Franziska Langenscheidt.<sup>4</sup> In it they noted that 'fresh or healed damage to the bones or changes due to illness could not be established' and that 'an injury in the area of the right supraorbital margin could not be established'. Theirs is the official report on these bones and it would be rash to challenge the findings of experienced colleagues who had every opportunity to examine them in detail before drawing their conclusions. However, after spending two days studying the bones of the skull and jaws—independently and in total ignorance of their findings—I came to a different conclusion, *viz.* that they demonstrate enough asymmetries and anatomical peculiarities to allow the suggestion that the last word may not have been said. The purpose of this section is therefore to describe briefly what I saw, solely in order to allow scope for further discussion.

(ii) *Effects of burning on bone*

Bones can and do shrink and become warped during cremation (see Appendix 1). The effect of fire on this skeleton has been described by Xiroiris and Langenscheidt (*op. cit.* n. 4), and all of us agree, independently, that the degree of shrinkage was probably *c.* 10 per cent.<sup>5</sup> To test this hypothesis I took a number of standard anthropometric measurements on the cranium and mandible, made adjustments for 15 and 10 per cent shrinkage respectively and found, to my satisfaction, that in all probability they had shrunk by only 10 per cent. The results of this exercise are summarized in TABLES 1 and 2. The warping, if any, to be seen on the individual bones will be discussed in the relevant sections.

Recently I burnt five isolated facial fragments and five mandibles in an electric kiln at 900°C for more than five hours in an attempt to learn more about the effects of intense heat on bone. These five separate experiments are far from ideal and are limited in number, but the results have shown that, although bones may shrink dramatically during prolonged exposure to this extremely high temperature, they do not necessarily warp and certainly do not shrink asymmetrically. Because my experimental material was probably exposed to this searing heat for a much longer period than was Philip's corpse it is not surprising that the degree of shrinkage was generally much greater than 10 per cent. That they came out of the kiln with such little apparent change to their appearance only serves to strengthen my own opinion that fire need not be implicated as the major cause of the asymmetries and anatomical peculiarities about to be described. An illustrated report on this experiment will be published in due course.

(iii) *Frontal bone*

The measurements recorded in TABLE 1 indicate that both bifrontal breadth and minimum frontal breadth were completely normal. The only abnormality is the asymmetry clearly visible on the superior orbital margins, that is the notch clearly visible on the medial portion of the superior margin of the right orbit: see arrow 1 on PLATE IIb.<sup>6</sup> The occasion for this injury is discussed further by my co-authors. Signs of healing and reorganization can also be detected: a small but distinct pimple of bone can be palpated on the internal surface close to where the

<sup>4</sup> N. I. Xiroiris and F. Langenscheidt, 'The Cremations from the Royal Macedonian Tombs of Vergina', *Arch. Eph.* 1981, 142–60, pls 52–4, esp. pp. 153, 158.

<sup>5</sup> Extrapolated from G. N. van Vark, *Some Statistical Procedures for the Investigation of Prehistoric Human Skeletal Material* (Groningen 1970).

<sup>6</sup> My photographs of the bones are not printed to a

uniform scale, because their purpose is to illustrate certain points and features. Moreover, as each area of the skull depicted is of a different size, the smallest one would suffer if uniformity were introduced. Some metrical data on each piece are reproduced in TABLES 1 and 2.

	MAB	FMB	WMH	FRC	B'
Philip II: raw score	53.2	86.0	*21.0 †20.5	107.0	87.5
Philip II: adjusted for 15 per cent shrinkage	62.6	101.1	*24.7 †24.1	125.8	102.9
<b>Philip II: adjusted for 10 per cent shrinkage</b>	<b>59.1</b>	<b>95.5</b>	<b>*23.3</b> <b>†22.8</b>	<b>118.9</b>	<b>97.2</b>
Fourth-century Olynthus	65.5			(110.5)	95.3
Early Classical to Roman Central Greece	63.7			112.4	96.6
Classical to Hellenistic Attica	63.8			113.1	96.2
26th–30th Dynasties Giza	62.8	96.1	22.5	111.9	

TABLE 1. Cranial measurements of Philip II and comparative data recorded by Angel and Howells.<sup>7</sup> Key: MAB=external palate breadth; FMB=bifrontal breadth; WMH=cheek height; FRC=frontal chord; B'=minimum frontal breadth; \* = left; † = right.

supraorbital nerve would have passed. The supraorbital notch or foramen was apparently damaged and this pimple may represent the attempt made by the frontal bone to compensate for the loss of its protective and gubernatory role.

Xirotiris and Langenscheidt presumably examined this feature closely before deciding that it was not associated with injury. Even if our suggestion that the upper margins of the eye sockets are asymmetrical is accepted, we still have to admit that trauma need not necessarily have been entirely responsible for the apparently exaggerated notch on the right. A similar feature appeared on one of my experimental crania after burning. However, in defence of our case it is fair to point out that it only occurred on a face that was already damaged elsewhere on the zygomatic (cheek bone) portion of the orbital margin. This may help to explain the presence of this asymmetry on the skull from Tomb II. If the pimple of bone on the inner surface mentioned above is real then we have evidence of reorganization following trauma. If the right cheek bone was already damaged and perhaps misaligned then it could be argued that the conditions existed for a notch already present at death to be made even more pronounced during the process of burning. On the experimental skull the left supraorbital margin retained its original shape, as that from Tomb II appears to have done.

ARROW 2 ON PLATE IIb points to a dramatic example of what frequently happens during cremation. Much of his left parietal and part of his left temporal bones have been bent through 90° along the left coronal suture. This feature indicates that a high temperature was reached. Because the axis about which the warping took place follows the line of a relatively open suture, there is a certain amount of flexibility and care is needed when handling this piece—see Appendix I for the implications.

#### (iv) *Zygomatic bones and maxilla*

We now come to a difficult but crucial area. There is little doubt that the upper part of the left zygomatic bone has been warped inwards (arrow 1, PLATE IIc); and that the degree of distortion has been exaggerated by the incorrect identification of what was thought to be a fragment of the left zygomatic arch (arrow 2, PLATE IIc). This was matched by colour—purple dye—not by anatomy. To me it resembles part of the anterior portion of the medial wall of the right orbit in the region of the nasolacrimal duct.

<sup>7</sup> J. L. Angel, appendix in D. M. Robinson, *id.*, *Hesp.* xiv (1945) 279–363; W. W. Howells, *Cranial Excavations at Olynthus xi: Necrolynthia, A Study in Variation in Man* (Harvard 1973).  
Greek Burial Customs and Anthropology (1942) 211–40;

As Mr Neave describes below, traces of a healed fracture have been identified on the right zygomatic (cheek) bone. This is perhaps reflected in the cheek height (WMH, TABLE 1); and in the fact that the external palate breadth (MAB, TABLE 1) is on the low side. Possibly connected with this is the asymmetry in the curvature of the lateral wall of the maxilla as it curves downwards from its junction with the zygomatic bone (zygomaxillare) to the gingival margin of the upper molar teeth. On the left the outline is normal; on the right it looks decidedly abnormal: see arrow 3, PLATE IIc. As a result the vertical height—or depth—of alveolar bone available for the sockets of the three upper right molar teeth is greatly reduced. My own view is that this is an important, though hitherto unrecorded and unexplained, feature of this maxilla. To attribute it to fire seems unnecessary in view of the failure to recreate a comparable phenomenon in any of the five experimental cremations mentioned above. Also connected with this may be the development of little bony growths (osteophytes) on the outer surface of the sockets for the three upper right molar teeth: see arrow 5, PLATE IIc.

Mr Neave and I agree that it is quite possible that at some time a small piece of bone was removed from both the right zygomatic bone and the maxilla where they meet at zygomaxillare (arrow 4, PLATE IIc). It is very difficult to be certain about this but it is odd, to say the least, that each bone seems to have had a nick taken out of it at the point where they meet.

It can be claimed with confidence therefore that at some time in the subject's life the upper and outer part of his right maxilla and the adjoining part of his right zygomatic bone were injured. In all probability this damage was caused at the same time as the injury to the frontal bone. Nor should one rule out the possibility that some of the anatomical peculiarities of his upper jaw were partly due to a congenital abnormality. Whatever the cause, it is worth recording that at death he had a full complement of 16 upper and 16 lower teeth: taking his probable age and life-style into account, this is quite an achievement (on his age, see further p. 67 and n. 14).

Sceptics might accuse us of attempting to strengthen our case by playing down the effects of fire. But in addition to performing experimental cremations in Bristol, we did spend a long time examining and re-examining both halves of the maxilla and the adjoining zygomatic bones in Thessaloniki before concluding that fire probably had little to do with the oddities observed on the right side. For example, the occlusal plane on both right and left sides appears to be horizontal; and, on the right side, it is possible to trace the grooves and channels for the superior alveolar nerves as they pass along the inner surfaces of the lateral wall of the maxillary sinus. Despite a crack or two, their course appears to be normal.

#### (v) *Mandible*

As mentioned earlier, the mandible is miraculously well preserved. Indeed, apart from some distortion to the left condyle which I think can be attributed to fire, it is complete. Its most interesting features—its asymmetries—may be listed as follows.

(1) The heights of the right condyle, coronoid process and incisura are much greater than those of the left: see the scores for the last three measurements on TABLE 2; and arrows 1, 2 and 3, PLATE II d.

(2) The right ramus is broader than the left: see the scores for rb' on TABLE 2.

These are observations based on measurements and it can be argued that fire may have affected the left side, or rather the left ramus, more than the right. If, however, we look at the first four measurements recorded on TABLE 2 (bicondylar width; bicoronal breadth; bimental breadth; and the left condylar length) it can be seen that, with an adjustment made for 10 per cent shrinkage, they all fall into the ranges of those for contemporary or near-contemporary populations. This presumably would not have happened if one side had been burnt more—or less—than the other, something that is not easy to imagine happening in the first place. Moreover our recent cremation experiments have shown that the vertical shrinkage of the

	w	c <sub>r</sub> c <sub>r</sub>	zz	c <sub>y</sub> l	rb'	m <sub>2</sub> p <sub>1</sub>	m <sub>2</sub> h	c <sub>r</sub> h	c <sub>y</sub> h	ih
Philip II: raw score	112	87	42	*19	*26		*22	*59	*38	
					†28	†27	†23	†69	†55	†49
Philip II: adjusted for 15 per cent shrinkage	132	102	49	*23	*30		*26	*69	*45	
					†33	†32	†27	†81	†65	†58
<b>Philip II: adjusted for 10 per cent shrinkage</b>	<b>124</b>	<b>97</b>	<b>46</b>	<b>*22</b>	<b>*29</b>		<b>*24</b>	<b>*66</b>	<b>*42</b>	
					†31	†30	†26	†77	†61	†54
Fourth-century Olynthus	(125)				33					
Early Classical to Roman Central Greece	123				31					
Classical to Hellenistic Attica	125				32					
4th–11th Dynasties Qau	114	92	44	20	32	28	26	65	54	45
12th–13th Dynasties Kerma	114	92	44	21	34	28	27	67	56	48
26th–30th Dynasties Giza	117	94	44	21	33	28	26	67		

TABLE 2. Mandibular measurements of Philip II and comparative data recorded by Angel, Morant and Martin.<sup>8</sup> Key: w<sub>1</sub>=bicondylar width; c<sub>r</sub>c<sub>r</sub>=bicononial breadth; zz=bimental breadth; c<sub>y</sub>l=condylar length; rb'=minimum rameal breadth; m<sub>2</sub>p<sub>1</sub>=molar–premolar chord; m<sub>2</sub>h=height of corpus at m<sub>2</sub>; c<sub>r</sub>h=coronial height; c<sub>y</sub>h=condylar height; ih=incisura height; \*=left; †=right.

mandibular ramus, as indicated by the coronial, condylar and incisura heights, is remarkably symmetrical. No differences between left and right approaching the magnitude of those seen on the Tomb II mandible were observed on the ascending rami of our experimental series.

(3) Realignment of the chin. For some reason which neither my clinical colleagues nor I yet fully understand but which may be either congenital or perhaps connected with the trauma to the subject's maxilla, there has been a shift in the position of the chin and dental midline from left to right. In all of us, on the labial or outside surface of the chin, there is a central raised ridge which runs downwards with its lower ends curving away elegantly to left and right respectively. On the mandible of this skull traces of this ridge can be seen, but the left hand flare now lies to the right of the midline. This system has been replaced by a less symmetrical boss that lies beneath the sockets for his lower left lateral incisor and canine: see arrow 1, PLATE IIe. As a result the natural midline between the left and right central incisors now lies visibly to the right: arrow 2, PLATE IIe. Perhaps associated with this change are several osteophytes on the outer surface of the sockets for the lower left incisors, similar to those observed on the maxilla: arrow 3, PLATE IIe.

(4) Changes to the posterior portion of the left mandibular body. Initially I wondered whether this apparent thickening was an artefact of burning. However, on re-examining the mandible I was able to confirm that it was caused by a pronounced downward continuation of the anterior border of the left coronoid process: see arrow 4, PLATE IIe. Correspondingly, although not necessarily connected, I noticed that the mylohyoid line—the posterior attachment of the mylohyoid muscle on the inner surface of the mandible—was much sharper and better developed on the left than the right. (Not visible, but its position is indicated by arrow 5, PLATE IIe.)

Again it can be pointed out that none of these other mandibular peculiarities—deviation of the dental midline, re-modelling of the chin and asymmetry in the posterior part of the body—were reproduced in our admittedly limited series of cremation experiments. As was mentioned above, even though we worked under very controlled conditions, at a very high temperature constantly maintained for an extremely long time and with macerated rather than flesh-clad bones, nevertheless our mandibles did shrink with remarkable symmetry. Even allowing for differences in cremation practice I should hesitate to attribute any of these morphological peculiarities to fire.

All these features suggest that the mandible as a whole became remodelled at some time for

<sup>8</sup> Angel, *op. cit.* (n. 7); G. M. Morant, *Biometrika* xxviii (1936) 84–122; E. S. Martin, *ibid.* 149–78.

reasons unknown. Our subject apparently acquired a new chin; and the added buttressing on the outer surface of the body on the left side posteriorly at the foot of the downward continuation of the anterior border of the left coronoid process indicates an increase in the power, and perhaps use, of the masticatory muscles inserted in that region, temporalis and masseter.

(vi) *Conclusion*

My brief was to examine these bones (a) as an anatomist familiar with the soft tissues of the head and neck and their underlying skeleton; and (b) as an anthropologist interested in ancient Greek cremations.

I am satisfied that they do display a number of anatomical peculiarities and asymmetries that need not be attributed to the effects of fire. The latter should not of course be ruled out altogether as it remains impossible to predict precisely what will happen to any given bone on exposure to very high temperatures. On balance, however, I feel more inclined to attribute them to trauma, congenital abnormality or a combination of both. Support for this hypothesis was given to both Mr Neave and myself by the experienced plastic and oral surgeons to whom we showed casts and photographs in Manchester and Bristol. If nature rather than fire really was the culprit then the suggestion that the bones belonged to a man known to have lost his right eye and perhaps sustained major injuries to much of the right side of his face 18 years before his death becomes very attractive indeed.

I can see no harm therefore in professing to cautious optimism that the bones from this great gold larnax did belong to Philip II. The anatomical evidence cannot be said to be conclusive but the variations from the norm suggest to me that in life, rather than in death, this skull may have had injuries inflicted on it similar to those Philip is recorded to have suffered.

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## II. RECONSTRUCTION OF THE SKULL

The great fifteenth-century anatomist Andreas Vesalius once said: 'As poles are to tents and houses so are bones to all living creatures.' He recognised that they provided the framework upon which the flesh was supported, and that the form of any creature was determined by the form of the skeleton. His analogy of tents and houses is very apt, as the outward appearance of these structures depends very much upon the materials used to cover the framework. Thus in the case of a reconstructed human head the final appearance depends upon not just the shape of the soft tissue, but colour of skin and hair, skin blemishes and expression. I do not believe therefore that it will ever be possible to recreate an exact likeness with complete certainty; what is possible, however, is to recreate from the skull bones a face very close to the original appearance of an individual. Controlled studies undertaken in this department demonstrate this fact; as do the limited number of forensic cases undertaken for the police where positive identification has been possible. Unfortunately legal restrictions and the specialised nature of such material do not allow publication here.<sup>9</sup> Harrison's examination of the pharaonic remains purported to be those of Akhenaten suggests strongly that the remains were in fact those of Smenkhkare. The facial reconstruction carried out as part of the investigation was a significant factor in the final decision.<sup>10</sup> Snow, Gatliff and McWilliams have established that actual identifications made from facial reconstructions are statistically well above the level of chance or luck, and that in all cases the reconstructions closely resembled the subjects as they had appeared in life.<sup>11</sup> During this

<sup>9</sup> I would of course be ready to discuss them personally with those wishing to pursue the topic.

<sup>10</sup> R. G. Harrison, 'The anatomical examinations of the Pharaonic remains purported to be Akhenaten', *JEA* lii (1966) 113-16.

<sup>11</sup> C. C. Snow, B. P. Gatliff and S. K. R. McWilliams, 'Reconstruction of facial features from the skull. An evaluation of its usefulness in forensic anthropology', *Am. J. Phys. Anthr.* xxxiii (1982) 221-8.

entire project every endeavour has been made to be scrupulously accurate; all the observations made by clinical specialists in England have been taken into account, and licence taken only when there was quite literally nothing else to guide us.

In September 1981 I made a preliminary examination of the skeletal remains, especially those of the skull, and realised that such was the state of the bones that it would be necessary first to make casts of those pieces which were relatively undamaged, and from these to reconstruct a skull upon which the face and head could be built. Fortunately the frontal bone was relatively intact, together with the left part of the nasal bone, although the latter was slightly damaged. The left and right halves of the maxilla were present although more badly damaged by heat on the left side. The mandible was complete and undamaged. Enough of the mastoid part of the right temporal bone was also in good enough condition to be useful.

Plaster casts of these bones were prepared, the moulds being made of dental alginate.<sup>12</sup> This material provides a very accurate yet flexible mould, which enabled final casts to be made of even the most delicate areas without causing damage to the original specimen. PLATE IIIa shows the plaster casts of the bones of the skull prepared in this way. The mandible was cast in two parts to avoid damaging the specimen; unfortunately the cast was itself slightly damaged during transit.

Unfortunately the distortion and fragmentation of the parietal, occipital and temporal bones was so extensive as to render them useless for this work. A detailed description of these bones (together with their medical implications) has been given by Dr Musgrave in section I, so I confine my comments to those that directly affect the reconstruction.

I estimated that there was enough material present to enable a reconstruction of the face to be undertaken, as it was the bones in the posterior region of the skull that had suffered most damage. Before starting any reconstruction we sought the advice of two facio-maxillary surgeons at Withington Hospital (the University Hospital of South Manchester), Mr E. Curphey of the Facio-Maxillary Unit and Mr John Lendrum of the Plastic Surgery Unit, constantly involved with cases of patients suffering from congenital malformations and traumatic injuries to the face—I felt that their help would be invaluable, and so it proved. Their conclusions were as follows. This individual had a full set of teeth. There was a marked degree of congenital hypoplasia (underdevelopment) on the left side of the head. This would not have been particularly noticeable in life, however, nor would it have affected his mental faculties. Evidence of traumatic injury in the region of the right orbit was also noted, there being a nick in the supraorbital margin and a fracture along the malar-maxillary suture, the latter being the more significant. Bone reorganisation of these two points indicates that these injuries occurred a considerable time before death, and were compatible with an injury caused by a missile striking from above. Although more recent observations suggest that the angle of the striking missile may have been less acute than at first thought, taking out the lateral edge of the orbit, what seems inescapable is that such an injury would certainly have blinded the right eye. There would also have been very considerable scarring, particularly when one considers the type of medical treatment that such a wound would have received at that period.

Reconstruction of the skull presented a number of problems as only the slightest degree of warping can prevent perfect realignment of bone fragments. It was necessary to make minor adjustments to the angle of the left side of the maxilla and to the right zygomatic bone. The mandible determined the width of the skull to a large extent but the posterior position had of course to be an approximation based upon the size and shape of other skulls which were of similar type. We accept that this cannot be 100 per cent accurate, but it was done with as much

<sup>12</sup> I describe the technique in detail in R. A. H. Neave, 'Reconstruction of the heads of three Ancient Egyptian mummies', *Journal of Audiovisual Media in Medicine* ii (1979) 156–64; *id.*, 'The reconstruction of the heads and faces of three Ancient Egyptian mummies', in

A. R. David (ed.), *The Manchester Museum Mummy Project* (Manchester 1979); see also W. M. Krogman, *The Human Skeleton in Forensic Medicine* (Thomas, Springfield 1962).

care and attention to detail as was possible. The method used to produce this skull was quite straightforward. Wax facsimiles were made of the original plaster casts; these were then set into a clay block. This allowed the bones to be manipulated until they were in exactly the right place in relation to each other. It was simple to make minor adjustments to the wax to ensure that a natural appearance could be achieved. Those areas of the skull that were missing were then built up with clay (PLATE IIIc, d). Then a final cast was made of the entire skull, complete with mandible in position. The preparation of the skull took several weeks to complete and was in many ways the most important part of the project, as it established the key to the shape and form that the final head would take and also the injury to the right eye.

We then started building the soft tissue, using the same techniques as those adopted for forensic reconstructions. First, pegs were inserted at 23 specific points on the skull, marking the thickness of soft tissue at those points. These pegs project from the surface of the skull by an amount corresponding to tables of average soft tissue thicknesses as compiled by Rhine and Moore of New Mexico (PLATE IIIb).<sup>13</sup> We realise that such figures are averages, and that they are not compiled by studying people from Macedonia, but they are the most up-to-date scientifically produced data available. The soft tissue on the face when seen during operative procedures on living subjects is very variable and the thicknesses greater than those indicated by Kollman and Büchly, whose measurements were taken from the deceased.

These figures therefore are a good guide and eliminate the temptation to 'sculpt' instead of working to specific guidelines. A further control is achieved by building up the face in an anatomical manner. By modelling first the basic muscle structure of the face and head and then adding subcutaneous tissue and skin the features will develop from the skull outwards until only the very tips of the marker pegs are visible. In this way the skull will determine the size and shape of the face. This is shown very clearly on PLATE IVa, where an area on the left side of the skull of a forensic subject is still exposed, showing the eyeball in its socket. The spacing of the features of the face will automatically be accurate. Basic anatomical principles determine the position of the ears, and of the eyeball within the eye socket.

The methods used to build the nose, mouth and eyelids are necessarily complex but briefly are as follows: for the nose, a line is drawn at a tangent to the last third of the nasal bone and another drawn as a continuation of the main direction of the anterior nasal spine. The point of intersection will give the position of the tip of the nose. The width of the bony nasal aperture is approximately  $\frac{2}{5}$  of the total nasal width. For the mouth, the width is approximately the same as the interpupillary distance, or as that between the junction of the canine and first premolar on each side; the fullness of the lips will be affected by the degree of prognathism, and the size of the teeth. For the eyes, the pupil viewed from the front is at the juncture of two lines, one drawn from the medial to the lateral margins of the orbit and another between the superior and inferior margins of the orbit. The inner corner of the eyelids can be reliably located; the shape of the eyelid cannot be so easily established, but will reflect the margins of the orbit.

Study of the bones has shown that the subject was between 35 and 55 years old.<sup>14</sup> The evidence of the eye-injury, already discussed in its anatomical context, and further examined in its historical setting by Dr Prag in section III, suggests to my colleagues that he is to be identified as Philip II, whom we know to have died at the age of 46. Philip's way of life suggests that he must have been physically strong, and would have had a weathered complexion. It is assumed that he had dark hair and beard and dark eyes. The mouth is shown well formed, with quite full lips: these are compatible with the skull and echo the type of mouth seen on the small ivory heads found in the tomb, which must be contemporary on any interpretation. For the sake of

<sup>13</sup> J. S. Rhine and C. E. Elliott Moore in *Maxwell Museum Technical Series* i (1982); see also earlier work by J. Kollman and W. Büchly, 'Die Persistenz der Rassen und die Rekonstruktion der Physiognomie prähistorischer Schädel', *Archiv für Anthropologie* xxv (1898) 329–59.

<sup>14</sup> Xirotiris–Langenscheidt (n. 4) 148–53; M. Andronicos, 'The Royal Tomb at Vergina and the problem of the dead', *AAA* xiii (1980) 172.



completeness the reconstruction of the nose was first made to follow the dictates of the skull exactly, but as the nasal bones had been damaged in the cremation the nose thus reflected this damaged appearance (PLATE IVa). As will be argued by Dr Prag, a prominent characteristic of members of the Argead royal house was a very pronounced bridge to the nose, and so this feature was incorporated when the nose was remodelled. Although there is no firm evidence it is probably more accurate than the first attempt (PLATE IVd).

A deep scar following the line indicated by the damaged bone runs diagonally across the right eye. The wound was deep and cut to the bone and would also have traumatized the eyeball. It is likely that with little or no treatment the fluid-filled globe would have collapsed and ultimately the orbit would be sealed with scar tissue involving the eyelids. I have endeavoured to give some idea of the effect of this horrendous facial scar without using excessive detail.

This very masculine head may seem incompatible with the lightly built skull, but this is not unusual. Many skulls are not overtly male or female in their appearance, and on occasions what we know to be a female skull may be very large and appear to have male characteristics.

A number of plaster copies were made of the finished head: no matter how accurate, however, this totally hairless and colourless version cannot give a strong impression of a living person—indeed being bald it tends to make him appear too old. Therefore one copy was made in wax; here we were most fortunate to have the help of Mrs Ruth Quinn, a skilled make-up artist, who was able to add skin colour and hair to the wax head. The skin colour is based upon that of the Mediterranean races, the hair is dark and shown as it may have been after a day's hunting. A short beard and moustache were added, in keeping with the normal custom of the time and following the style of the Vergina ivory (PLATE VIIa, b), purely on the grounds of contemporaneity. The appearance and colour of the scar is based upon first-hand observation by Mrs Quinn of a similar wound suffered by a lumberjack. Caused by a falling axe, his injury had been left untreated for many weeks, by which time natural healing had taken place. Although the injury took place 16 years ago (almost the same interval as that between Philip's injury and his assassination) it still has a livid and somewhat shiny look to it. These final finishing touches bring the face to life in a most startling way (PLATE Va, b). As I have often noticed in this type of work the true character of an individual seldom emerges until we see the fully finished person. Not until colour and hair are added can everything be seen in its true perspective, with one feature correctly balanced against another.

In attempting to present our argument as clearly as possible we may appear to have run ahead of the evidence at some points, in particular where the reconstruction is concerned. We are sure that this is more apparent than real, for this reconstruction is but one small part of the overall investigation, reflecting and incorporating as accurately as possible all the information that has been gleaned. I believe it is as true a likeness as it is possible to obtain at present.

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### III. THE HISTORICAL AND ARCHAEOLOGICAL EVIDENCE

Professor Andronicos' discoveries at Vergina were themselves so exciting that it is hardly surprising that since he first announced them many other scholars too have been tantalized by the problem of which members of the Macedonian royal family were buried in the tombs. I accept his arguments that the tomb is a royal one, and I do not intend to reopen discussion here of the dating evidence provided by the pottery and the diadem found in Tomb II, and by the technique and haste of its construction; rather, I try to compare the implications of the reconstruction of the dead man's appearance with what we know of the two most likely royal candidates for the occupancy of the main chamber of Tomb II, Philip II and Philip III Arrhidaeus.

(i) *Arrhidaeus*

Andronicos has repeatedly stated that whoever the dead man may be, he cannot be Arrhidaeus, because there was an interval of several months between his murder by Olympias in 317 BC and his burial by Cassander in the following year, yet the burial at Vergina shows signs of haste. However, because he remains the favoured candidate of those who prefer the late dating, I consider the evidence for his appearance here, partly because our evidence supports Andronicos' case.<sup>15</sup>

We know pathetically little about what Philip III Arrhidaeus looked like. The ancient authors tell us only that he suffered from an incurable mental illness, sometimes wrongly diagnosed as epilepsy. The medical evidence is against there being any necessary link between the deformity of the skull from Tomb II and the mental capacity of the dead man, but it is worth quoting Plutarch's description of Arrhidaeus in full, for it too effectively forestalls any such suggestion:

... τὸν Ἀρριδαῖον . . . ἀτελῆ δὲ τὸ φρονεῖν ὄντα διὰ σώματος νόσον οὐ φύσει προσπεσοῦσαν οὐδὲ αὐτομάτως, ἀλλὰ καὶ πάνυ φασὶ παιδὸς ὄντος αὐτοῦ διαφαίνεσθαι χάριεν ἦθος καὶ οὐκ ἀγεννές, εἶτα μέντοι φαρμάκοις ὑπὸ Ὀλυμπιάδος κακωθέντα διαφθαρῆναι τὴν διάνοιαν.

Arrhidaeus . . . was deficient in intellect owing to bodily disease. This, however, did not come upon him in the course of nature or of its own accord, indeed, it is said that as a boy he displayed an exceedingly gifted and noble disposition, but afterwards Olympias gave him drugs which disabled him and ruined his mind.<sup>16</sup>

Yet Arrhidaeus was clearly not so handicapped as to be physically disabled, else he would not have been capable of taking the role of *sacrorum ceremoniarumque consors* which Alexander thrust upon him, even nominally, nor indeed would Perdikkas, Antipater, Polyperchon and Cassander each in turn have used him as their figurehead.<sup>17</sup> Arrhidaeus' coinage simply continues that of Alexander the Great, so this gives us no guide to his physical appearance. However, von Graeve has suggested that a marble head in Naples, allegedly found in Egypt, may be intended as a portrait.<sup>18</sup> His argument is based on the position of the head in the development of the Hellenistic ruler-portrait out of the idealizing classical tradition that persists into the reign of Alexander. On grounds of diadem, beard and distant gaze von Graeve sees the head as standing at the end of the line of bearded rulers which otherwise culminates with Philip II, and preceding the clean-shaven Alexanders and Diadochoi: since it evidently does not represent Philip II, the only other late fourth-century ruler who could be a candidate is Philip III Arrhidaeus.

<sup>15</sup> Andronicos (n. 14) esp. 170–3. For a detailed analysis of the possibilities see, e.g., Peter Green, 'The Royal Tombs at Vergina: a historical analysis', in W. L. Adams and E. N. Borza (eds), *Philip II, Alexander the Great and the Macedonian Heritage* (Washington 1982) 129–51 (with a comprehensive bibliography, to which the reader is referred): Green comes down in favour of Philip II. Arguing for Philip III Arrhidaeus: e.g. Phyllis Williams Lehmann, 'The so-called tomb of Philip II: a different interpretation', *AJA* lxxxiv (1980) 527–31; *ead.*, 'Once again the Royal Tomb at Vergina', *AAA* xiv (1981) 134–44; also Anna-Maria Prestianni Giallombardo and Bruno Tripodi, 'Le Tombe regale di Vergina: quale Filippo?', *Ann. Scuola Norm. Sup. Pisa*, class. lett. fil. x (1980) 989–1001, revised at the Athens congress.

<sup>16</sup> Plut. *Alex.* 77.5, cf. 10.3; *id.*, *Mor. (de Al. Fort.)* 337d, 791e; D.S. xix 52; Justin xiii 2.11. The evidence for Arrhidaeus' epilepsy is only found in the *Heidelberg Epitome* of one of the anonymous histories of the

Diadochoi that is close to Diodorus but according to Bauer and Jacoby perhaps goes back to Hieronymus (c. 320–250 BC), though Jane Hornblower, *Hieronymus of Cardia* (Oxford 1981), does not mention it (*FGrH* 155 F 1 836.3–4 and Comm. p. 548); it seems quite inconsistent with the other descriptions of his illness and can surely be discounted as a layman's ignorant conception of the effects of epilepsy.

<sup>17</sup> For Arrhidaeus' religious duties, Curt. Ruf. x 7.2. His career is summarized by P. W. Lehmann (n. 15) 529–30.

<sup>18</sup> The coins: e.g. B. V. Head, *Historia Nummorum* (Oxford 1911) 228; *Sylloge Nummorum Graecorum v: Oxford, Ashmolean Museum* 3, *Macedonia* nos 3184–3242. The Naples head: Naples, Mus. Naz. inv. 187 (138); V. von Graeve, 'Zum Herrscherbild Philipps II und Philipps III von Makedonien', *AA* 1973, 256–9, figs 19–22.

It is a tenuous argument, but lacking any other evidence one should at least look at the Naples head (PLATE Vc-d). Slightly under life-size (height of face 14.5 cm) it shows a man somewhat below middle age; the roughened surface of the cheeks von Graeve interprets as being intended to have the beard pieced onto it. He has a weak, rather fleshy mouth and chin, a long rather pointed nose, and the heavy brow-ridges that are a feature of the Argead physiognomy. His thick hair is held in place by a band or diadem tied in the knot of Herakles. It is true that the head gives the impression of a somewhat vacant, bewildered figure which would tally well with what little we know of Philip III Arrhidaeus' personality.

It has further been suggested by von Graeve and others that Arrhidaeus also appears on the lid of the Alexander Sarcophagus, as the bearded warrior on the right of the pediment illustrating a fight on foot.<sup>19</sup> The argument is largely historical, and involves identifying the episode on the pediment as the murder of Perdiccas in 321 BC, with Arrhidaeus coming to Perdiccas' defence. Since the murder attempt was successful, and 'Arrhidaeus' defence in vain, this seems a curious way to commemorate him. It is hard to identify this well-built, controlled warrior with the figure who, like 'a mute guardsman on the stage was the mere name and figure of a king, exposed to the wanton insults of those who happened to have the real power'.<sup>20</sup> Although the warrior figure is small, apart from diadem and beard it appears to have very little in common with the Naples head, having for example a straighter nose and eyebrows and a squarer head. This indeed is a personage who might have led a life in which he was wounded in the eye (of course he is not shown thus on the sarcophagus), but it does not give us the figure whom the ancients described as *οὐ φρενήρης*, 'not in his right mind'.<sup>21</sup>

## (ii) Philip II

With Philip II we are in a somewhat better position. Ancient writers tell us virtually nothing of his appearance except that he wore a beard, and of their long list of statues of the king that existed in antiquity none survives.<sup>22</sup> The only inscribed representation of Philip, a fourth-century AD mosaic from Baalbek depicting the birth of Alexander with Philip sitting by as a beardless and somewhat apprehensive young father, is so late and so generalized as to be of no value.<sup>23</sup>

The evidence of the coins is a little more helpful. At the 1983 Athens Congress Dr M. J. Price showed a silver coin which he attributed to Kapsa, on the east of the Thermaic Gulf, depicting a bearded head in a *kausia* facing to the right, which he argues—to my mind convincingly—to show Philip II, and which he has most generously allowed me to mention here ahead of his full publication in the Congress *Acta* (PLATE VIb). The coin is very small, but the detail is nevertheless remarkable: one sees the right profile of a man in the prime of life, with a square head, deep-set eyes and fleshy features; the nose is prominent but straight, the chin small, and he has short, wavy hair and beard. The face has much in common with the known portraits of Philip, and with our

<sup>19</sup> Von Graeve (n. 18) 258, fig. 24; *id.*, *Der Alexandersarkophag und seine Werkstatt = Ist. Forsch.* xxviii (1970) 138–42, pls 66.1–68.1.

<sup>20</sup> Plut. *Mor.* 791e (trans. E. N. Fowler, Loeb edn); *cf. ibid.* 337d.

<sup>21</sup> Prestianni Giallombardo and Tripodi (n. 15) 1000 suggest that one of the five ivory heads from Vergina published by Andronicos depicts Arrhidaeus. Their identification is based on the hypothesis that the dead man in the tomb is Arrhidaeus; even accepting this, one is not much further forward in saying which of the three heads is Arrhidaeus, which Cynna and Eurydice (their candidates for the other two), since it is notoriously hard to determine the sexes of the heads. The logic of their argument is slightly curious, seeing two heads as those of Philip II and Alexander as father and brother of the

dead king and the other three as the three occupants of the group of tombs. Finally, such an explanation does not take into account the other nine unpublished heads, presumably unknown to the authors: the information that there are fourteen heads in all I owe to Prof. Andronicos' team at Vergina.

<sup>22</sup> G. M. A. Richter, *Portraits of the Greeks* (London 1965) iii 253 gives the ancient references; add to her list Ath. xii 591b. Many attempts have been made to link these with the surviving portraits, but without real success.

<sup>23</sup> Richter (n. 22) iii 253, fig. 1707a–b; M. Chéhab in *Bull. Musée de Beyrouth* xiv–xv (1958–9) 46 ff., pls xxii–xxvii; E. B. Harrison in *Hesp.* xxix (1960) 386; von Graeve (n. 18) 244.

reconstruction, but the most striking feature, clearly visible on the working photograph published here, is the mark resembling a crescent, face down, between the upper and lower eyelids. Dr Price assures me that this does not look like a flaw in the die, and should thus be a deliberate indication by the engraver of Philip's eye injury. The coin cannot be dated more accurately on external grounds than the middle of the fourth century BC, probably soon after 350; the eye wound gives a *terminus post quem* of 354 BC (see below).<sup>24</sup>

Philip II's own coinage, though inscribed, is less useful. It does not carry his head, but the figure of the bearded rider wearing the *kausia*, diadem and *chlamys* that appears on many of his silver types is generally taken as showing Philip himself, rather than just a generalized image of the king of Macedon (PLATE VIa).<sup>25</sup> The fact that this rider faces left, thereby showing his left profile, whereas many other Macedonian king-horseman types, and Philip's own galloping rider or jockey and chariot types, continued by his successors, are normally shown with the figures moving to the right, may well support the identification, as I shall argue later.<sup>26</sup> The head is so small that it gives us little more than the image of a bearded, heavily built man with a large slightly hooked nose and prominent brow-ridges, but one who bears a relation to some of the better portraits.

Obviously related to coin types, although it cannot be more than a second-hand likeness at best, is the gold medallion from Tarsus, from the reign of Caracalla (PLATE VIc).<sup>27</sup> It shows a careworn and battered personage, heavily built with a well-shaped rather square head, who faces left. His brow is furrowed, there are lines around the eyes and nose, and the nose itself has a marked bridge (this does not show in all reproductions). His neck is thick, with a noticeable Adam's apple. He has a short thick curly beard, and a good head of curly hair held in place by a diadem, whose presence has suggested to many that the original on which the medallion was based was a posthumous portrait; they fail to notice that the diadem on the medallion is the traditional Macedonian cloth one, and not of metal; besides, if our case for the skull is proven, then a gold and silver diadem need not postdate Philip II.<sup>28</sup>

<sup>24</sup> I am most grateful to Dr Price for his great generosity in allowing me to refer to this coin, which is in a private collection, and to publish one of his own study photographs ahead of his own full publication in the Athens Congress *Acta*.

<sup>25</sup> E.g. G. Le Rider, *Le monnayage d'argent et d'or de Philippe II frappé en Macedoine de 359 à 294* (Paris 1977) 364–6, pls 1–6, Pella IA 1–43, 50–3, 59–78, Pella IB 79–139 (and later plates for other mints). Le Rider notes that the diadem only appears from Pella IB 79 (minted c. 354/3 BC) on. See also M. Bieber in *Proc. Am. Philos. Soc.* xciii (1949) 368 with n. 6 for the earlier references. The example illustrated here is in the Manchester Museum, and is not listed by Le Rider.

<sup>26</sup> E.g. Le Rider (n. 25) pls 6–22 nos 140–543 (Pella IIA 1–Pella III) (young rider/jockey); pls 53–73 nos 1–635 (gold staters, chariot). The small silver pieces Pella IA 44–9, 54–8 unusually show a young rider facing left, discussed by Le Rider 366, pls 2–3.

<sup>27</sup> Paris, Bibliothèque Nationale: first identified by A. Longperier, *R. Num.* xiii (1868) 313 ff.; Richter (n. 22) iii 253, fig. 1706; M. Bieber (n. 25) 378 (both with earlier bibliography); E. Babelon, *Am. J. Num.* xlv (1910) 119–21; *id.*, *Traité des monnaies grecques et romaines* (Paris 1932) pt II vol. iv 529–31; *Philip of Macedon* (n. 3) 169, pl. 91. Babelon argued that the head of Zeus on the obverse of Philip's tetradrachms forms the basis for the Tarsus medallion, but I see little likeness beyond the fact that both show bearded men in the prime of life; the Zeus echoes the severe Phidian type. Prof. Elisabeth Alföldi-Rosenbaum has kindly warned me that the

authenticity of the medallion is not beyond question. As a consequence of his rejection of all the 'received' portraits of Philip II in the light of the Chicago head which I discuss later, Oikonomides suggests that the medallion shows Pyrrhus. Although his identification of the six-rayed *fulmen* on the shoulder-piece of the cuirass as the Epirot royal symbol and his linking of the Nike Trophaiophoros that appears above it with Pyrrhus' gold coinage of 274/3 BC seem convincing, the actual physiognomy of the head on the medallion is—apart from the beard—quite different from that on the gold coins of Bruttium which he suggests are portraits of Pyrrhus. Besides, Oikonomides does not explain why Caracalla should have chosen to identify himself with an enemy of Rome, nor why 'Pyrrhus' should be shown wearing the Macedonian royal diadem: Al. N. Oikonomides, *Coin World International* 28 April 1982, 33, 38; *id.*, 'The portrait of Pyrrhus, King of Epirus, in Hellenistic and Roman Art', *The Ancient World* viii. 1–2 (1983) 67–72. P. Arndt in *Strena Helbigiana* (Leipzig 1900) 16 n. 2 also rejects the identification as Philip, on the grounds that the features are shown in too Hellenistic a manner.

<sup>28</sup> E.g. Bieber (n. 25) 378, who proposes as the original the replacement for the statue mentioned by Arrian i 17.11 as having been in the temple of Artemis at Ephesus and pulled down shortly before Alexander's arrival in 334 BC. On the diadem see n. 32 below. A series of *emblemata* on pottery bowls dated to the first centuries BC–AD but going back to Hellenistic originals depict a head similar to that on the Tarsus medallion

Turning now to the three-dimensional works that have been identified as portraits of Philip II, four types concern us, which I shall consider in 'ascending order' of realism.

First, the 'Alcibiades' head, originally connected with Philip by Arndt, and linked by him with the statues by Leochares set up in the Philippeion at Olympia, though more recently the suggestion has not always found favour.<sup>29</sup> When compared to the other portraits of Philip there is a distinct resemblance in the square head and pronounced chin, but the longer face and calm, somewhat philosophical expression are, as von Graeve has argued, intended to project the classical idealized image of the philosopher-king rather than the battle-scarred general and statesman.<sup>30</sup> Since we have another more realistic tradition of portraits of Philip II, the 'Alcibiades' type, though important in the history of portraiture and of attitudes towards Philip himself, is of less value in establishing his true appearance.

By contrast, the well-known herm in Copenhagen has been placed by von Graeve at the head of the more realistic tradition of Hellenistic ruler portraits (PLATE VI*d, e*).<sup>31</sup> Poulsen's original identification, now generally accepted, was based on the admittedly somewhat subjective grounds that it shows an able and energetic, perhaps even a brutal man; that the style of the original on which the Trajanic copy is based should place it in the third quarter of the fourth century BC; that it wears a diadem, the Macedonian symbol of royalty which the 'Alcibiades' type normally lacks;<sup>32</sup> and that there are obvious physical similarities to the Tarsus medallion in the square, firm shape of the head and face, the lined features, the hair and beard—von Graeve suggests that the altered fashion of dressing the hair, parted over the temples and swept back above the ears, looks forward to the tradition followed by the Diadochoi in the early third century. Because we have a frontal view as well as the profile we notice the firm, high cheekbones, but the jutting chin confirms the impression of a powerful, strong-willed personality, tough, experienced and battle-scarred both mentally and physically, but not without humour if of a rather cynical, brutal kind. Especially significant must be the fact that there is a slight but marked difference in the rendering of the two eyes: the marble is damaged but it is still clear that the left eyebrow has a lift which the right one lacks, and there is a distinct

(e.g. Goulandris collection: *Philip of Macedon* [n. 3] pl. 93; Athenian Agora P17103; G. M. A. Richter, *Greek Portraits* iii = *Coll. Latomus* xlvi [1960] 44–6, pl. xlv fig. 201; Athenian Agora P30813, to be published by H. S. Robinson in a forthcoming volume on the Early Roman Fine Wares from the Agora). It has been associated with Philip II, but I prefer Richter's more non-committal description, 'perhaps a Hellenistic (Macedonian?) ruler', for the face is fleshier and less lined, the cheeks more rounded, the nose shorter and lacking the pronounced bridge; the prominent Adam's apple is missing, and the whole shape of the head is different, more dolichocephalic than on other representations of Philip. I am most grateful to Prof. Evelyn Harrison for drawing my attention to the Agora pieces, to Miss Margot Camp for supplying me with a photograph and information, and to Prof. Robinson for help and advice with both pieces and permission to quote them. On *emblemata* in general, Richter *op. cit.* 44–5, *Greek Portraits* i 11–12.

<sup>29</sup> Arndt (n. 27) 10–18; Paus. v 20.10. For a recent list, Helga von Hentze, 'Zum "Alkibiades"', *Röm. Mitt.* lxxviii (1961) 182–6 (who rejects the identification); for a summary of the discussions, with references and illustrations, von Graeve (n. 18) 244–56, figs 1–4, 7–8, etc., for a very perceptive discussion; also Richter (n. 22) i 106, figs 449–50 (as Alcibiades, not Philip); Arndt 11–15, figs 1–6; A. Stewart, review in *Art Bull.* lxix (1982) 324–5 of *The Search for Alexander: an Exhibition* (Boston: New York Graphic Soc. 1980) (catalogue of an

exhibition held in Washington, Boston, San Francisco and Toronto, 1980–3).

<sup>30</sup> This may of course have been an image which Philip himself wished to project: see e.g. G. Cawkwell, *Philip of Macedon* (London 1978) 54–7.

<sup>31</sup> Ny Carlsberg Glyptothek 2466: I owe the photograph to Dr Mette Moltesen, with thanks; Richter (n. 22) iii 253, fig. 1708; V. Poulsen, *Les portraits grecs* (Copenhagen 1954) 47 no. 18, pl. XV; *Search for Alexander* (n. 29) 98 no. 1 (with bibliography); von Graeve (n. 18) 252–6; Al. N. Oikonomides in *Coin World International* 9 September 1981, 97 ff., *ibid.*, 28 April 1982, 33 ff., argues against the identification on the grounds that it differs too much from the Chicago head discussed below.

<sup>32</sup> Many scholars such as von Graeve ([n. 18] 252) take the presence of the diadem as evidence that the statue was erected posthumously, on the grounds that it was only introduced by Alexander from Persia: but that diadem was of gold and silver and the one on the Copenhagen statue is clearly of cloth, in the traditional Macedonian fashion. On the chronological significance of the diadem in general, e.g. Andronicos (n. 14) 177–8 with references; Stewart *loc. cit.* (n. 29); for a summary of the discussions, Green (n. 15) 134 with n. 11; for the minutiae, expressed with some feeling, see the debate between P. W. Lehmann and E. A. Fredricksmeyer in *AJA* lxxiv (1980) 527–31, lxxxv (1981) 332–4, lxxxvi (1982) 437–42, lxxxvii (1983) 99–102.

nick in the upper corner of the right eyebrow, a less obvious rendering than that on the Vergina ivory, but still striking, bearing in mind the position of this head in the development of realistic portraiture as outlined by von Graeve.

Crucial to any discussion of the appearance of Philip II must be the bearded ivory head from Tomb II at Vergina (PLATE VIIa, b). The identification has never really been in doubt since Andronicos first tentatively suggested it, even if the names of its thirteen companions have been debated: whoever was buried in the tomb, the bearded head must be a contemporary portrait.<sup>33</sup> It compresses far more individuality and personality into its very small compass than do any of the beardless ivory heads from the tomb so far published.<sup>34</sup> The face is that of a mature, experienced man. It is again square, though less noticeably so than the Copenhagen head because the cheekbones are given less prominence. The features are on the heavy side, perhaps recalling the 'strong sensual mouth' which some have noted on the Copenhagen head, but even allowing for the beard, the face is much less fleshy than those of the other four published ivory heads.<sup>35</sup> The face is lined around the corners of the nose and eyes—these crow's feet give a touch of humour to the face. Because the forehead is not shown, one cannot tell whether it was furrowed, but since the other four published ivories have creased foreheads one can assume that this one did too; and that it may not have had much significance. The throat with its large Adam's apple is prominent—compare the Tarsus medallion—but then so it is on the other heads too, and the slight twist given to all the heads will bring this forward anyway. The chin juts out obstinately again, and the nose is large, not as long as some Argead noses, but still an idiosyncratic feature, thickened and somewhat hooked at the bridge, more marked than on the Tarsus medallion. Yet it is the eyes that are the most striking feature. Immediately obvious is the scar above the right eye; the two eyes do seem to be rendered differently, giving the impression that the right one is sightless. As on the Copenhagen head, the eyes are idiosyncratic, with a lift to the outer corner of the eyebrow that is surely intended as a feature of the man's personality, for it is not a regular feature of Greek heads. The eyes themselves beneath their prominent brow-ridges are slightly more angled than they are on the Copenhagen head, where they are set squarely and conventionally horizontal. Detailed examination of the head confirms that the left eye is set slightly lower in the face than the right, and the left cheek is slightly flatter.

There are of course differences between the ivory and the Copenhagen and Tarsus versions, but these can be ascribed to differences of material, function and date. The Tarsus medallion, though assuredly based on a contemporary or near-contemporary original, was made under Caracalla with the intention of glorifying Caracalla, and is the picture of a stern, experienced military leader and statesman; the Copenhagen head may turn out to hold an almost unique position in the development of portraiture, and still retains sufficient features of the classical, idealizing tradition to explain what one may call its conventional features. The value of the Vergina ivory, which perhaps shows a slightly older Philip, lies in its contemporaneity, and in its much more personal nature. It has all the virtues of belonging to the so-called minor arts.<sup>36</sup>

The final portrait of Philip II which I shall discuss is the small late Hellenistic marble head

<sup>33</sup> E.g. in *AAA* x (1977) 40; *Archaeology* xxxi.4 (September–October 1978) 39–41; and in 'The Royal Tombs at Aigai (Vergina)', *Philip of Macedon* (n. 3) 228, pls 115–19. The head also features as no. 170 in *Search for Alexander* (n. 29) and as no. 152 in the *Treasures of Ancient Macedonia* catalogue (Thessaloniki Museum 1979). For a summary of the discussions and references, e.g. Green (n. 15) 150 n. 58 and Prestianni Giallombardo–Tripodi (n. 15) 991–2. Some scholars have been perplexed at the speed with which the ivories were carved if the couch to which they were attached was to be ready for Philip II's funeral: the natural answer is that it was already a cherished possession of the king's during his lifetime. Oikonomides argues that the head represents Amyntas, on the grounds that the wound over the

right eye is not sufficiently serious to have blinded it, *Coin World International* 26 August 1981, 44 ff.

<sup>34</sup> Contrast Andronicos *loc. cit.* (n. 33); *op. cit.* (n. 14) 169 for retraction; also e.g., Prestianni Giallombardo–Tripodi (n. 15) 1000; R. W. Hartle, 'The search for Alexander's portrait' in Adams–Borza (n. 15) 153–76.

<sup>35</sup> E.g. P. Bamm, *Alexander the Great* (London 1968) 42; the other heads: e.g. *Philip of Macedon* (n. 3) figs 115–18.

<sup>36</sup> Cf. the comments of Hartle (n. 34) 165 on the almost unflattering realism of the Vergina head in showing the 'ethos' of Philip: he suggests that the scar, in that it is the result of a wound and not part of a portrait of his character, perhaps flaunts Philip's toughness in the same way as Moshe Dayan's eye-patch. In the

from Egypt (Alexandria?) in the Field Museum, Chicago, recently identified by Oikonomides and shown in the *Search for Alexander* exhibition in Chicago (PLATE VIIc, d).<sup>37</sup> The head is turned to the right in the pose found on many statues of Alexander, and is set on a very thick neck which has the 'collar of Venus' typical of much Hellenistic art—perhaps the Alexandrian sculptor's adaptation of the prominent Adam's apple found on the other heads of Philip. The features are blurred, but the head is clearly that of a middle-aged man with a rather heavy, fleshy face framed by a short, thick beard and moustache and luxuriant hair, in which the small horns of Ammon sweep backwards, so that the whole is strongly reminiscent of the 'Diadochos' style of the Copenhagen head in the way it is swept over the temples. Like that head and the Vergina ivory, it has straight, not curly, hair. It has the square shape one has come to expect of portraits of Philip II, and the chin—now damaged—seems to have jutted forward. The nose is almost entirely lost, but its wide bridge and base suggest it was a prominent feature. The eyebrows do not seem to have the upswept outer corners of the Copenhagen and Vergina heads, but where those only indicated a scar over the right eye, the Chicago version actually shows a hollow eye-socket, but with little trace of an injury at the outer corner. (I have only been able to study the head from photographs.)

The similarities of the Chicago marble to the Copenhagen and Vergina heads, and to a lesser extent to the two reliefs, is so striking that the identification as Philip II is secure, and it is invaluable in confirming the information provided by them; but it is unlikely that it is a close copy of a fourth-century original. The horns of Zeus Ammon in the hair (bringing together the Egyptian tradition of Alexander as the son of Khnum-Ammon and his true Greek parentage), the Alexander-like twist of the head, the thick neck, and the deep-set eyes which again belong in the Alexander tradition, all suggest a certain fusion of the iconographic traditions of father and son. It is also much easier to explain the appearance of the empty eye-socket in the context of late Hellenistic art, where the fourth-century versions had indicated the wound progressively more clearly: first the unwounded 'Alcibiades' type; then the nicked and uneven eyebrows of the Copenhagen head; finally the clear scar on the Vergina ivory. But this hollow eye-socket belongs to another and more brutal world. It is not a coincidence, surely, that the horseman on Philip's coins rides to the left, when the majority of such types face to the right; nor that the Tarsus relief tactfully shows us Philip's left side, in contrast to the striking gash on the Kapsa coin.

Turning to the literary evidence, we find that although the ancient authors say nothing about Philip II's physical appearance, they do tell us a great deal about the wounds he received during his military career. The evidence for the eye wound along with the other injuries is mostly brought together by Didymus Chalcenterus in his commentary on Demosthenes, written in the first century BC, but drawing on Theopompus, Marsyas and Duris: τὸν δέξιον

light of Demosthenes' comments on Philip's endurance and ambition (*De Cor.* xviii 67) such a comment is surely justified (see further below).

<sup>37</sup> Field Museum of Natural History no. 26749: 19 cm high (my thanks to Miss Nina Cummings for the photographs); *Search for Alexander* (n. 29) Chicago supplement no. S-1, with further notes by John Herrmann in the Boston and subsequent supplements; Al. N. Oikonomides, 'Philip II, Khnum-Ammon and Alexander's Mint at Alexandria', *The Ancient World* iv. 3-4 (1981) 84; *id.*, *Coin World International* 9 September 1981, 97 ff. Having first (in the *Search for Alexander* catalogue) identified this head as Philip II on the basis of its similarity to the Vergina and Copenhagen versions, Oikonomides has now moved to a more extreme position, and rejects all other portraits on the ground that they do not stress the eye-injury as forcefully as the Chicago head. Apart from the coin from Kapsa,

colleagues have kindly drawn my attention to other possible portraits, still unpublished: Dr Hélène Cassimatis has shown me photographs of a small terracotta in the Graeco-Roman Museum in Alexandria (no. 9792), of early Hellenistic date, which seems to have much in common with the Vergina ivories; Prof. Andronicos has identified one of the riders on the fresco decorating the façade of Tomb II at Vergina as Philip II; and Prof. Oikonomides has told me in a letter of two further heads, identified as Philip because of the injured right eye, which are to be published in a forthcoming number of *The Ancient World* devoted to Philip II and his family. For promise of a different approach, rejecting all the received portraits in favour of a new group, see the abstract of a paper given at the 1981 Chicago symposium on Alexander by Jiri Frel, 'Portraits of Philip II and the Finds from the Vergina Royal Tombs' in *The Ancient World* iv. 3-4 (1981) 86.

ὄφθαλμὸν ἐξεκόπη τοξεύματι πληγείς ἐν ᾧ τὰ μηχανώματα καὶ τὰς χωστρίδας λεγομένας ἐφέωρα. 'He had his right eye cut out when he was struck by an arrow while inspecting the siege-engines and the protective sheds at the siege of Methone.' This was in 354 BC, eighteen years before his death; other ancient authors confirm that the wound was caused by an arrow: indeed Didymus specifically quotes Philip's fellow-campaigners to reject Duris' elaboration, in which a man call Aster claimed to have done it with a spear, while Strabo's version, in which a catapult bolt was responsible, must be the result of confusion with the circumstances in which Philip suffered the injury while inspecting the catapults (Hammond is surely right in saying that Philip would hardly have survived such a wound, which would have caused much greater physical damage).<sup>38</sup>

The word used to describe the injury by those authors who are specific is ἐκκόπτειν, which though often translated 'to knock out' in this context, strictly means 'to cut out': it is the word used for felling trees, and to describe the actions of a surgeon. Where the simple verb is used for knocking on doors (or a straight-forward blow with a weapon), the compound implies bursting them open or breaking them down. It is easy to envisage a sniping archer on the walls of Methone awaiting his opportunity during the inspection which Didymus describes, and loosing off an arrow at a moment when Philip raised his head. Even the famous iron helmet from Tomb II need not offer protection from a glancing blow—in fact this, or any other type of fourth-century Macedonian helmet (since it is not necessary to imagine that Philip was wearing on campaign the very same helmet with which he was buried eighteen or nineteen years later), might have turned a near-direct hit into a glancing blow: instead of killing the king, as the tradition records befell Harold at Hastings, it merely left him with an agonizing and disfiguring wound.<sup>39</sup>

An arrow wound such as the ancient authors describe Philip II as having suffered conforms with the tradition of the portrait heads, and also with the injuries found on the skull from Tomb II. If the evidence leads us to identify the two, we still need to consider the congenital deformity of the skull. If the skull is really that of Philip II, and was congenitally underdeveloped on the left side and overdeveloped on the right, why is there no evidence for this either in the ancient portraits or in the literature?

First, the deformity is not so severe that it need have been apparent or distressing, particularly when covered by the thick beard that Macedonians traditionally wore (may Alexander have appeared clean-shaven to emphasize that he was physically well-formed?).<sup>40</sup>

<sup>38</sup> Didymus Chalcenterus (ed. Diels-Schubart [Berlin 1904]) col. 12. 43 ff. on Dem. *Phil.* xi 22; Theopompus *FGrH* 115 F 52; Marsyas *FGrH* 135, 136 F 16; Duris *FGrH* 76 F 36; see also Dem., *De Cor.* xviii 67. Also D.S. xvi 31 and 34.5, *συνέβη τὸν Φίλιππον εἰς τὸν ὄφθαλμον πληγέντα τοξεύματι διαφθαρῆναι τὴν ὄρασιν*; Justin vii 6.13 (epitomizing Pompeius Trogus), 'cum Methonam urbem oppugnaret, in praetereunte de muris sagitta jacta dextrum oculum regis effodit'; Strabo vii *fr.* 22; Plut. *Alex.* iii 2. N. G. L. Hammond and G. T. Griffith, *A History of Macedonia* ii (Oxford 1979) 257–8 with n. 2, have some telling comments on the psychological effect the wound must have had on the besieging king.

<sup>39</sup> Iron helmet: e.g. *Philip of Macedon* (n. 3) pl. 129. Experiments carried out in the British Museum through the kindness of Mr B. F. Cook and Miss Judith Swaddling showed that Philip could have suffered such an eye injury even while wearing a helmet, particularly if he had it pushed back a little. My colleague Dr A. H. Jackson, having studied the problem both from the point of view of ancient armour and as an archer, suggests that the Methonian archer let fly at Philip as he

looked through or round the protective shed or siege engine; that Philip, perhaps seeing the archer aim his bow, ducked and turned to the right, turning a fatal direct hit into a glancing blow. Dr G. F. Howard, formerly Hon. Keeper of the Simon Archery Collection at the Manchester Museum, tells me that taking the different types of Greek arrowhead into account, the wound must have been caused by a heavy 'Cretan' arrowhead; the smaller 'Scythian' type is unlikely to have caused so much damage to the bone. For the types, e.g. A. M. Snodgrass, *Arms and Armour of the Greeks* (London 1967) 40, 81 ff., 116, 124, pl. 35.

<sup>40</sup> Perhaps his need to do so is reflected in the medieval tradition of an Alexander of less than perfect physique: e.g. G. Cary, *The Mediaeval Alexander* (Cambridge 1956) 292 n. 42, quotes Peter Comestor's twelfth-century *Historia Scholastica* (*Patrologia Latina* cxcviii col. 1456A) as recording that in one of Daniel's prophecies Alexander is described in somewhat uncomplimentary fashion, 'ut hircus, ut ab hircis oculorum, quod diversi coloris habuit'. (We owe this reference to Prof. J. A. Burrow.)



Secondly, I have suggested that the Vergina ivory may hint at an imbalance between the two cheeks and eyes, the left cheek being flatter than the right, and a similar asymmetry can be detected between the two sides of the face of the Copenhagen head which is not necessarily the result of the differential rendering of the 'visible' and 'concealed' sides of the face found on later portraits. Thirdly, it is of course obvious that the ancient Greeks were aware of physical deformity among their fellows: indeed, in a society where medical care was still primitive it must have been a far more common—and therefore unremarkable—sight than today. It is surely significant that the best artistic evidence for this lies in the minor arts, in the many terracotta figurines of caricatures and grotesques that are particularly common from the Hellenistic period: it is only on this domestic level, as it were, that the Greek artists allowed themselves to make what Richter describes as 'spontaneous sketches' that include and eventually underline and caricature a person's physical abnormalities.<sup>41</sup> True Greek portraiture illustrated the personality of the whole man, not just his head and not just his physical features: whereas in one tradition at any rate the personality of Socrates must needs be conveyed by depicting him as a corpulent, balding old Silenus, nothing was to be added to Philip's character by showing him with a slightly malformed face.<sup>42</sup>

The same conventions prevail in literature. Even Aristophanes only rarely hints that his characters have any physical abnormalities, and when Demosthenes abuses Philip, it is for those faults of character or behaviour over which he might be hoped to have some control, such as his greed, his lechery or his lust for power. Physical peculiarities or disabilities were simply not relevant, and he never discussed Philip's, or any other antagonist's either. It is significant that when Demosthenes lists all the wounds Philip was prepared to suffer for the sake of empire, power and glory—to have an eye cut out, his collar-bone broken, his hand and leg maimed—he does so in a tone of high moral indignation, that while this is something which Athenians should be prepared to undergo (but did not), it was unnatural for a mere Macedonian to do so.<sup>43</sup>

To sum up, the scanty evidence for the appearance of Philip III Arrhidaeus suggests a mentally ill, vacant-looking man, probably with some of the Argead features such as the long slightly hooked nose; even in accompanying Alexander and the generals who later used him as a figurehead he can rarely if ever have been directly involved in battle. The ancient portraits of Philip II give us the figure of a battle-hardened warrior, a man with a square face, an obstinate chin and prominent Adam's apple, with heavy features, a distinctive nose with a marked bridge, prominent eyebrows with an idiosyncratic lift at the outer ends, a lined, slightly humorous face and furrowed brow framed by a short thick beard and moustache and thick straight hair. The face may lack symmetry, particularly in the cheeks, and the right eyebrow is scarred, the right eye sightless.

The medical evidence for the age of the dead man, between 35 and 55 (see n. 14), is not conclusive—Arrhidaeus was 39 or 40 at the most at the time of his death, Philip II was 46. However, the injury around the eye provides the strongest argument that the body in Tomb II at Vergina is indeed that of Philip II. While one would never claim that our reconstruction is a completely accurate portrait, it is worth emphasizing again that only at two minor points did I suggest any changes to the reconstructed head, based on archaeological rather than anatomical evidence: in the form of the nose with its prominent bridge, to conform with the appearance of the Argead family as a whole, and the shape of the back of the head, to give it a more typical square appearance. That neither of these conflicts with the surviving evidence from the skull has already been explained by Mr Neave. Apart from this, and the obvious close contact between

<sup>41</sup> See especially her perceptive comments in *Greek Portraits* iii (n. 28) 14 ff.

<sup>42</sup> Cf. the remarks of Hartle, quoted in n. 36 above. On Greek portraiture in general, e.g. Richter, *Greek Portraits* i: *A Study of their Development* = *Coll. Latomus* xx (1955) 12–13. On Socrates, e.g. Richter (n. 22) 109–19, figs 456–73; Martin Robertson, *A History of*

*Greek Art* 509–10 (with references).

<sup>43</sup> *De Cor.* xviii 67. We do not discuss the other injuries, nor the implications of the unequal greaves found against the entrance of the tomb, because we have not yet studied the bones with them in mind, although we plan to do so during 1984; the comments of Green (n. 15) 135–6 are, however, important.

colleagues working on the same project, the work of reconstruction was deliberately carried out without reference to the ancient portraits, and it has been intriguing to see in how many respects the result came to correspond to the much-debated ancient portraits of Philip II, notably the square face with a strong chin and marked brow-ridges, the distinct unevenness between the two sides of the face, and the disfiguring injury to the right eye. One can of course find minor differences, but of the kind which do not depend on the bone-structure of the skull and which are to be found in the small features of the face that betray a person's character and life-style but leave no physical trace.

If one accepts our conclusion, there are considerable implications for the chronology of the tombs, but this is not the place to discuss them.<sup>44</sup> The implications for the study of Greek portraiture are perhaps equally interesting. The reign of Philip corresponds with a crucial period in its development. The trend from the 'Alcibiades' type through to the Vergina ivory, the relief types (especially the Kapsa coin) and the Chicago head could on art-historical grounds be seen as one from idealism to realism. The reconstruction demonstrates how realistic these later portraits are, even if—understandably—they never venture to show the eye wound in its full horror; but then nearly two thousand years later a similarly forceful statesman had to exhort his portrait painter to 'remark all these roughnesses, pimples, warts and everything as you see me'.<sup>45</sup>

A. J. N. W. PRAG

*The Manchester Museum*

#### APPENDIX I: THE METHOD OF CREMATION

The mode of cremation adopted has received little attention hitherto, but it is a topic on which I can claim some authority, and a few comments seem appropriate here because the skeleton from Tomb II shows every sign of having been burnt in some sort of enclosed chamber.<sup>46</sup> This is, however, my personal view and I am well aware that it does not accord with what is known about cremation techniques in ancient Greece from the literary sources and from vase-paintings. The latter suggest that burning on an open pyre was the standard practice: see for example the carefully erected pyre for Patroclus on a volute-krater in Naples by the Darius Painter, and a similar one for Alcmene on a krater by Python.<sup>47</sup> However, such a method is obviously very destructive: when the logs burn through, the body falls with them and the bones become more and more fragmented as more logs fall and crush them. Moreover it becomes very difficult to recover anything approaching a complete skeleton from a large open pyre. Anyone who has seen this skeleton, skilfully reassembled and laid out by conservators of the Archaeological Museum at Thessaloniki, can only marvel at its near-completeness and the huge size of many of the pieces. The right ulna, for example, though obviously slightly warped and cracked, is complete (see arrow 1, PLATE IIa): one can follow the shaft from one end to the other without finding a trace of a transverse break. It measures 227 mm. Most limb-bone shaft fragments from a pyre are less than 100 mm long. The fact that the mandible was also complete strengthens my 'oven' hypothesis, as does the

<sup>44</sup> The crucial dating of the three 'royal' salt-cellar to 325–295 BC was based on probability rather than certainty; a minority of the pots from the three wells in which were found the parallels on which the dating was based already belong to 350–325 BC: Philip II could quite simply afford the latest and best. (Cf. Susan I. Rotroff, 'Royal salt-cellar from the Athenian Agora', *AJA* lxxxvi [1982] 283; *ead.*, *Hesp.* forthcoming. My thanks go to Dr Rotroff for discussing the salt-cellar with me, though the conclusions are of course mine.) See also n. 32 above on the diadem and barrel vaulting, with the comments of W. M. Calder that follow those of Fredricksmeyer.

<sup>45</sup> Oliver Cromwell to Lely, quoted in Horace Walpole, *Anecdotes of Painting* ch. 3.

<sup>46</sup> I have been interested in cremations professionally

for many years, and was privileged to be invited to study those from Lefkandi (*Lefkandi* i 429–46); Lower Gypsadhes Hill, Knossos (*BSA* lxxvi [1981] 162–5); Knossos, North Cemetery (report in preparation); and Torone (in progress). I have also taken advantage of my post as a DHSS Licensed Teacher of Anatomy to secure permission to observe modern techniques in action at a crematorium at Bristol. The products of ancient and modern techniques are very similar.

<sup>47</sup> Darius Painter: Naples, Mus. Naz. 3254 (inv. 81393); Trendall and Cambitoglou, *RVAP* ii 495 no. 39; FR pl. 89. Python's Alcmene krater: F149; Trendall, *Paestan Pottery* 56, pl. 15; A. D. Trendall and T. B. L. Webster, *Illustrations of Greek Drama* 76 no. III. 3, 8 (illus.).

flexibility I have noted above on the frontal bone: had this piece been floating loose in an open pyre the flange of parietal bone would almost certainly have been broken off (arrow 2, PLATE II*b*). Indeed the whole skeleton can be said to be in a more robust condition than many recovered from a modern cremation oven. PLATE II*a* could more easily have been taken in a modern crematorium in Britain than on the banks of the Ganges.

How then was he cremated? I believe that a brick box, with base, sides, lid and legs, was constructed around the body; and that enough fuel was placed beneath, around and on top—and continuously replaced—to produce the 900°C required to reduce his cadaver to the condition we see it in today. Given the circumstances of Philip's death and Alexander's need to act speedily to consolidate his position, this method of disposing of the body had distinct advantages over burning it on an open pyre: it takes less time and is far less obnoxious. Depending upon the physique of the subject—fat people burn more quickly than thin ones—and the degree of pre-heating (unlikely in Philip's case) of the oven, a body can be reduced to 'ashes' in between 45 and 90 minutes.

Support for this hypothesis is not confined to the appearance and condition of the bones. Until detailed analysis of their composition proves otherwise, no harm can come from asking whether 'the heap of sun-dried bricks' found on top of the vault may have represented the remains of a cremating chamber rather than an altar: Andronicos has noted that their presence is unique.<sup>48</sup> If the two iron swords, the *sarissa* point and the horse trappings found with them came from the pyre, why could not the bricks themselves have done so too, and indeed formed an integral part of it? It is of course easy to dismiss this suggestion on the grounds that no comparable evidence has come to light elsewhere in Greece. However, there always has to be a first example, and this is not the only unique feature of the tomb and its contents. After all, the barrel vault and the silver-gilt diadem have attracted much attention for their alleged precocity.

J. H. M.

#### APPENDIX 2: STATURE OF PHILIP II

Xirotiris and Langenscheidt have published estimates of the dead man's living stature from the lengths of his left humerus and left tibia that ranged from 163.3 cm to 167.5 cm.<sup>49</sup> When I studied the skeleton I did not know what attempts my colleagues had made to estimate his height and accordingly decided to make my own. It was pleasing therefore to find that we had all tackled the problem but in different ways and with a mixture of both similar and different results. For example, I decided not to use his left tibia as it looked too damaged and I used different regression equations to estimate stature from limb bone length.

I measured the lengths of both his left humerus (28.8 cm) and his right ulna (22.7 cm). As I recall, the latter was better preserved than the former. However, estimates of stature based on the humerus are marginally more reliable than those based on the length of the ulna. The regression equations I used are those of Mildred Trotter.<sup>50</sup> They yielded the following estimates of Philip's living stature:

(i) <i>From left humerus</i>		<i>Stature</i>
Measured length:	28.80 cm	—
Adjusted for 15 per cent shrinkage:	33.87 cm	174.77 ± 4.05 cm
Adjusted for 10 per cent shrinkage:	31.97 cm	168.92 ± 4.05 cm
(ii) <i>From right ulna</i>		
Measured length:	22.70 cm	—
Adjusted for 15 per cent shrinkage:	26.70 cm	172.84 ± 4.32 cm
Adjusted for 10 per cent shrinkage:	25.20 cm	167.29 ± 4.32 cm

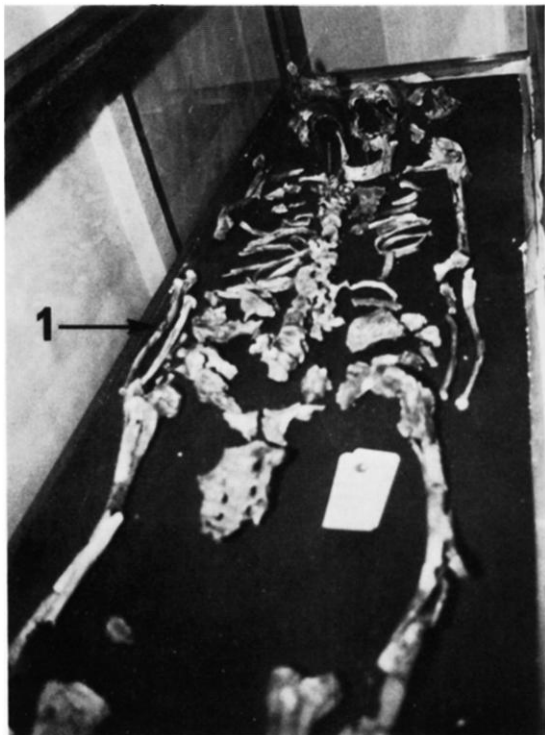
The minimum estimate therefore would be approximately 1.67 m, the maximum 1.75 m. The most acceptable range would, I believe, lie between 1.67 m and 1.72 m. These are higher estimates than those proposed by Xirotiris and Langenscheidt but nonetheless realistic for a well-fed, if lame, southern European king living in 336 BC.

J. H. M.

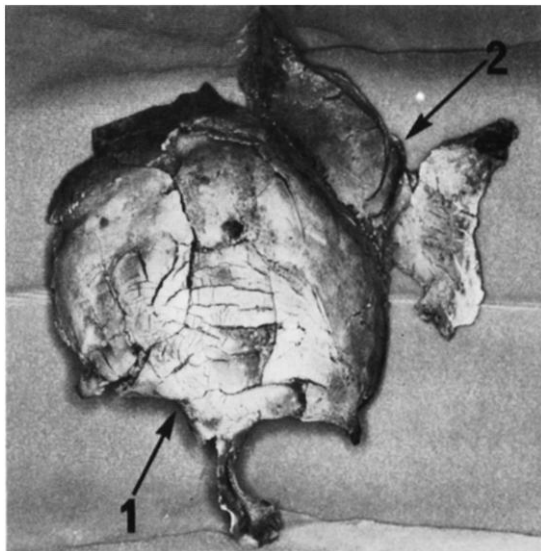
<sup>48</sup> For Andronicos' description of the sun-dried bricks see *AAA* x (1977) 51–2, 71 (= *Royal Graves* [n. 3] 28–9, 50), *AAA* xiii (1980) 170–1.

<sup>49</sup> *Arch. Eph.* 1981, 153–4.

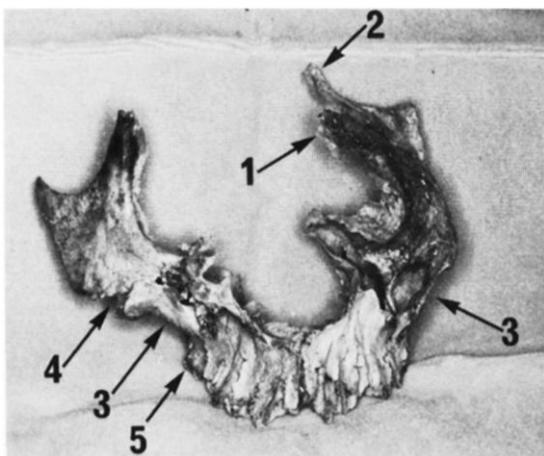
<sup>50</sup> In T. D. Stewart (ed.), *Personal Identification in Mass Disasters* (Washington 1970) 71–83.



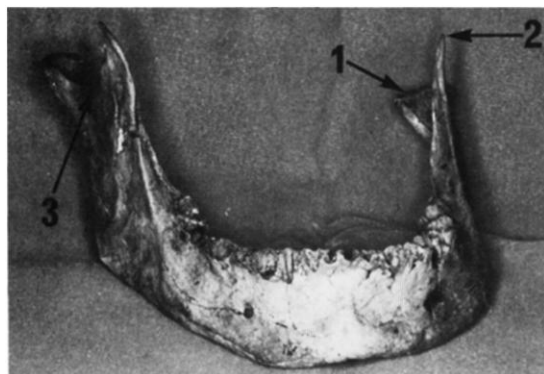
(a) Cremated skeleton from Vergina, Tomb II (Philip II). 1 = complete right ulna (Archaeological Museum, Thessaloniki).



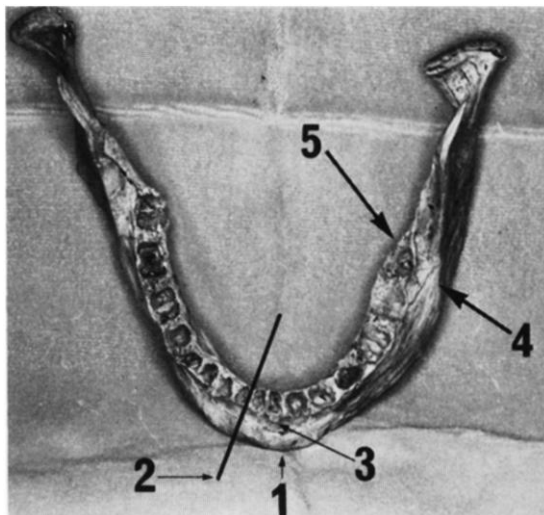
(b) Frontal bone from Vergina, Tomb II. 1 = trace of missile wound; 2 = portions of left parietal and temporal bones twisted through 90° around axis of coronal suture.



(c) Left and right halves of maxilla and left and right zygomatic bones from Vergina, Tomb II. 1 = left zygomatic bone; 2 = fragment incorrectly identified as part of the left zygomatic arch; 3 = asymmetrical curvature of lateral walls of left and right halves of maxilla; 4 = damage to right zygomatic bone and maxilla at zygomaxillare; 5 = osteophytes on gingival margin.



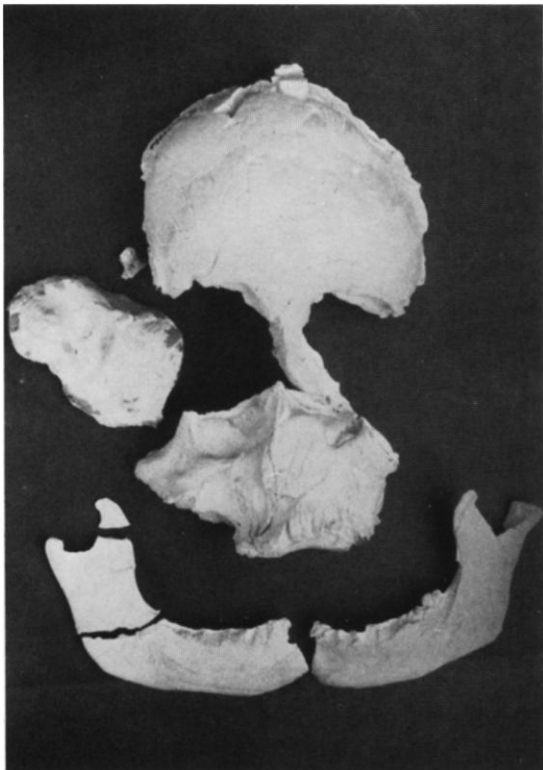
(d) Mandible from Vergina, Tomb II. 1 = left condyle; 2 = left coronoid process; 3 = right incisura.



(e) Occlusal view of mandible from Vergina, Tomb II. 1 = remodelled chin; 2 = dental midline deviated to right; 3 = osteophytes on gingival margin; 4 = downward extension of left coronoid process; 5 = left mylohyoid line (not visible).

(All photographs J. H. Musgrave, courtesy Prof. M. Andronicos).

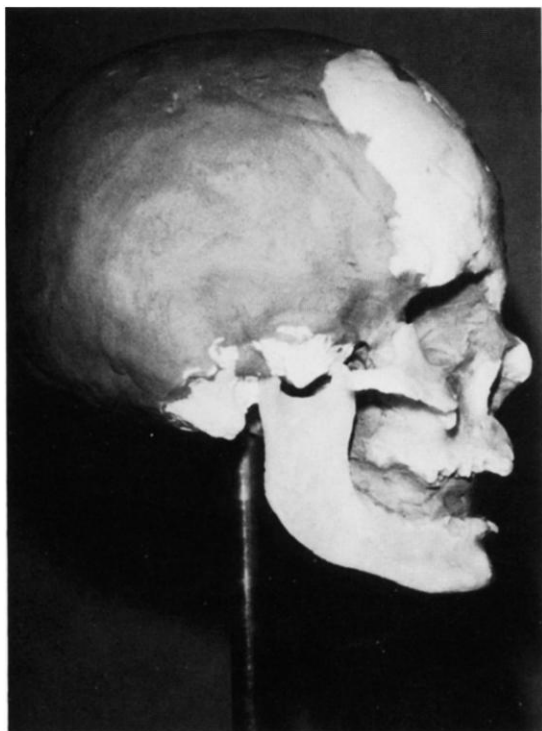
THE SKULL FROM TOMB II AT VERGINA



(a) Plaster casts of the bones of the skull from Vergina, Tomb II (Courtesy Department of Medical Illustration, University of Manchester).



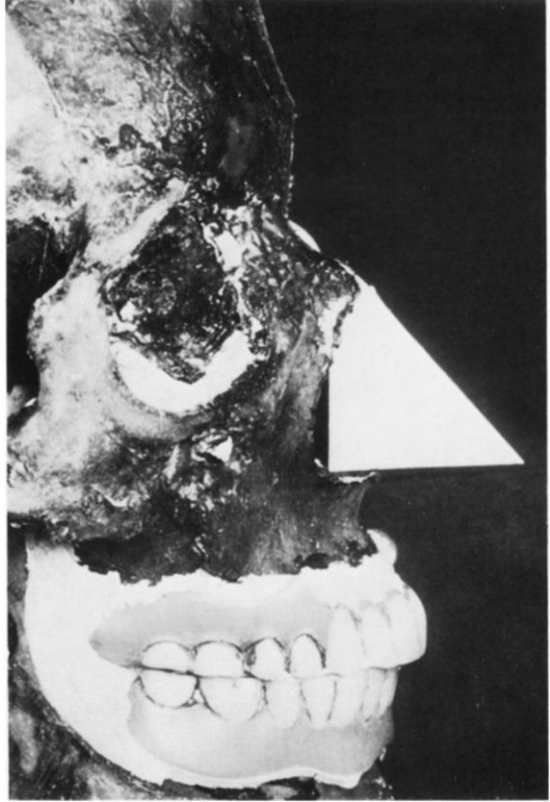
(b) Plaster cast of the skull of a forensic subject, with marker pegs in position ready for the soft tissue to be added (Courtesy Department of Medical Illustration, University of Manchester).



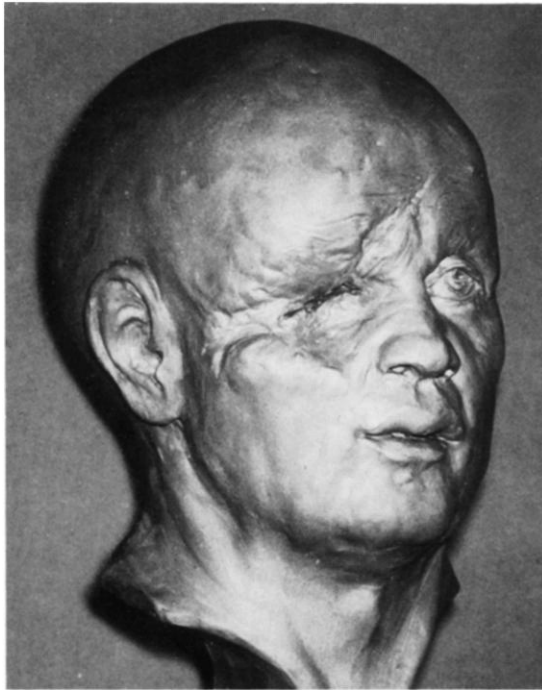
(c) and (d) The reconstructed skull from Vergina, Tomb II (Courtesy Department of Medical Illustration, University of Manchester).



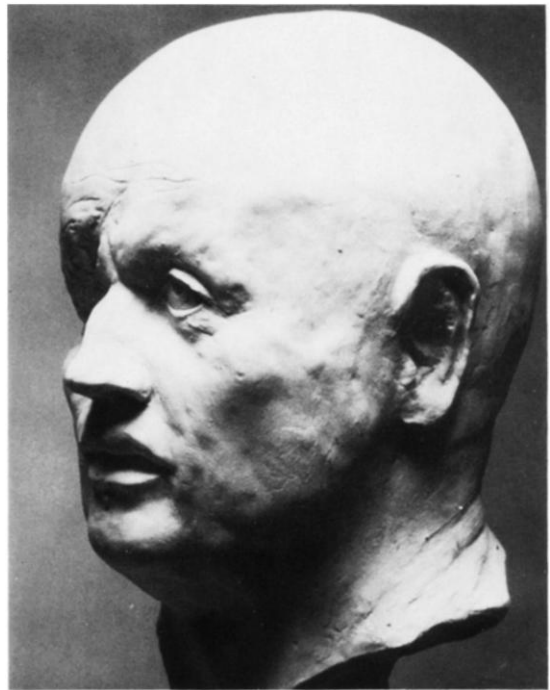
(a) Partly reconstructed skull of a forensic subject.



(b) Forensic specimen demonstrating method of estimating the size of the nose.



(c) Clay model of the head developed upon the skull as it first appeared, with snub nose. The scar across the right eye is already fully developed.

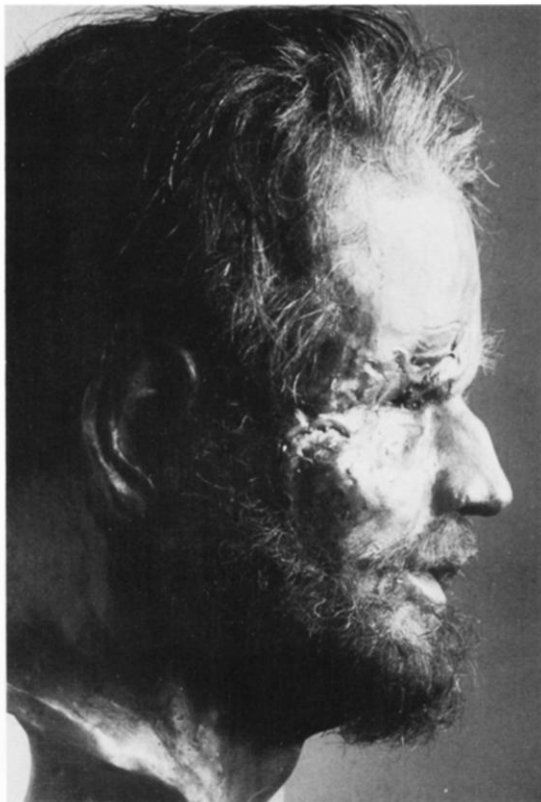


(d) Plaster cast of the modified head showing the Argead nose.

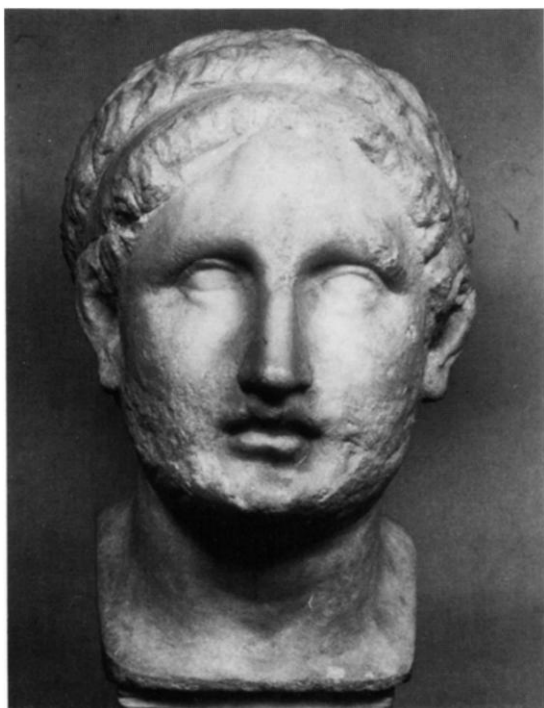
(All courtesy Department of Medical Illustration, University of Manchester).

THE SKULL FROM TOMB II AT VERGINA





(a) and (b) Philip II: wax cast of reconstructed head, with hair, beard and skin colour (Courtesy Department of Medical Illustration, University of Manchester).



(c) and (d) Marble head of Philip III Arrhidaeus (?) (Naples, Museo Nazionale 187 [138]; photographs courtesy Prof. K. Fittschen and Soprintendenza alle Antichità delle Province di Napoli e Caserta, Naples).

THE SKULL FROM TOMB II AT VERGINA

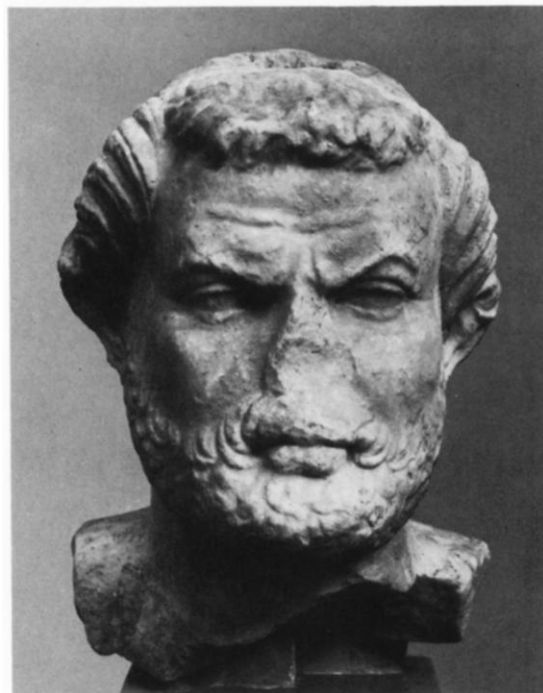


(a) Silver coin of Kapsa: Philip II (Private collection: photograph courtesy Dr M. J. Price).



(b) Tetrachm of Macedonia (detail): Philip II (?) (Courtesy The Manchester Museum).

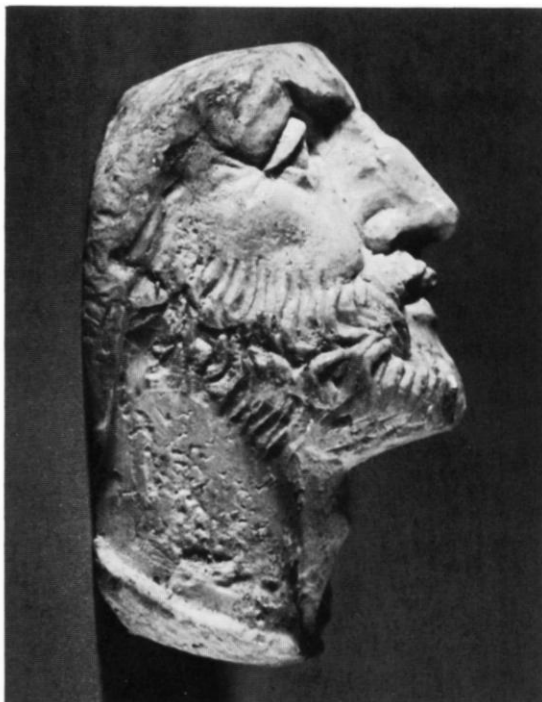
(c) Gold medallion from Tarsus: Philip II (detail) (Courtesy Bibliothèque Nationale).



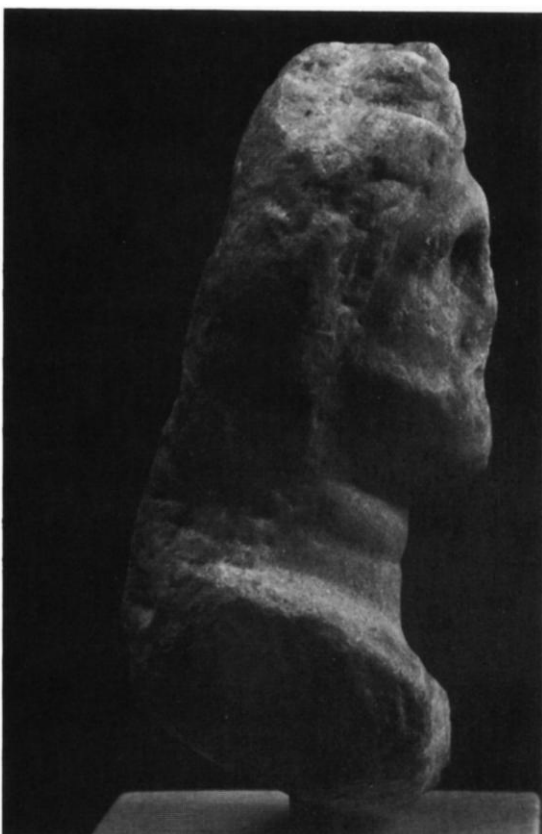
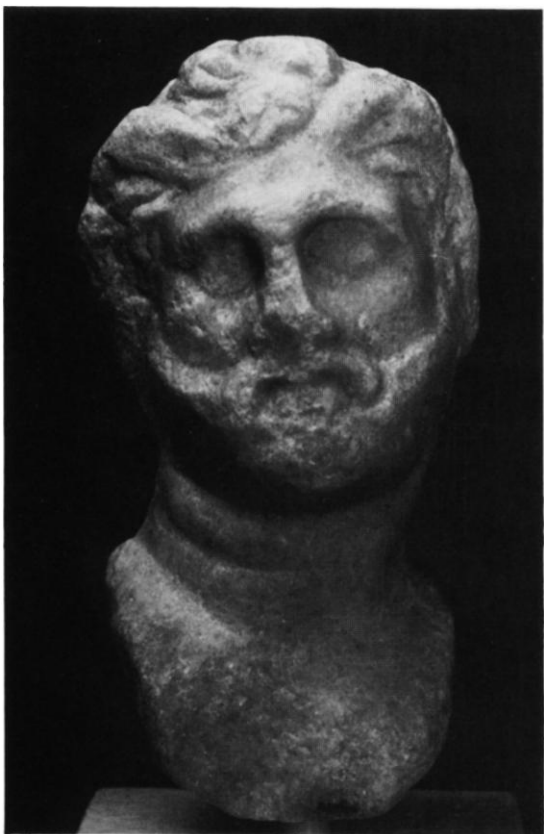
(d) and (e) Marble head of Philip II (Ny Carlsberg Glyptothek 2466: museum photographs).

THE SKULL FROM TOMB II AT VERGINA





(a) and (b) Miniature ivory head of Philip II from Vergina (Thessaloniki, Archaeological Museum: photographs courtesy Prof. M. Andronicos).



(c) and (d) Marble head of Philip II (Field Museum of Natural History, Chicago, 26749: museum photographs).

THE SKULL FROM TOMB II AT VERGINA